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ABSTRACT

Informal research and development (R & D) is defined as any small-scale, decentralized agricultural or extension education program that involves the population of learners in the process of planning, implementation, and evaluation of a learning process. It involves simple experimentation with potential solutions to common problems. The presence of a professional trained in informal R & D methodologies can facilitate each step in the informal R & D model. Informal R & D promotes several concepts of prime concern to international educators and development experts, including active participation of the local population, focus of teaching/learning content, respect for indigenous agricultural knowledge and skills, and the possibility of development leading to political empowerment and to demands for change in the distribution of power within society. The many roles that an agricultural or extension educator must be prepared to play under these circumstances can be grouped within five broad categories. Roles in the initial planning stage include those of the researcher, collaborator, and consultant. During implementation, the educator's roles include facilitator, resource person, consultant, and instructor. A key role during evaluation is to guide the process. Professional educators must also report results and serve as trainers. (25 references.) (YLB)

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Informal Research and Development for Agricultural Development- Key Roles for Agricultural and Extension Educators

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Informal Research and Development for Agricultural Development--Key Roles for Agricultural and Extension Educators

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Informal or participatory research and development (R&D) has been emerging in the literature and in practice as a viable alternative to more formal approaches for agricultural development. Simkins (1977) described nonformal/informal education as short-term, recurrent, individualized, learner-centered and democratic. Schroeder (1988) reported that such 'non-systems' are often the predominant form of education for adults in developing countries, although so far these have eluded rigorous study. From a wide variety of fields, authors are calling upon scientists and educators to consider informal R&D as the model for our research and educational programs and projects. For example, Oakley (1988) described the need for alternative models for use in horticultural extension efforts in developing countries, citing the repeated failure of programs based upon 'transfer of technology'. Odell (1986) called for small scale, 'trial and error' rural development programs in Extension that allow participants to learn from experience. Richards (1985) and Hall (1979) have written of 'participatory research'; Richards in Indigenous Agricultural Revolution, from the viewpoint of an agronomist doing adaptive field research, and Hall from the perspective of an adult educator. Chambers (1985), in his essay "Putting 'Last' Thinking

First: A Professional Revolution", explained that the current search for an alternative model is largely in response to top-down oriented education and development projects that have not performed as well as expected or failed completely.

DEFINITION OF THE MODEL

For the purposes of this paper, informal or participatory R&D is defined as any small scale, decentralized agricultural or extension education program that seeks to involve the population of learners in the process of planning, implementation and evaluation of a learning experience involving simple experimentation with potential solutions to common problems. The programs are informal in the sense that participation is voluntary and learning objectives emerge during the process, while the process itself is relatively formalized. This process involves audience identification, needs assessment, setting priorities and objectives by group consensus, conducting field studies of possible solutions to priority problems and evaluating the results of these studies. The particular example described here has been developed by the author from a literature review within the fields of adult education, community development, integrated rural development, extension education and farming systems research/extension. There are essentially seven steps in the model, each of which can be facilitated by the presence of a professional trained in informal R&D methodologies. The steps presented below are very similar to those found in farming systems research models, but particular emphases are placed upon

participation, identification of indigenous knowledge and skill development of the group members.

1) Characterization of the farming and/or marketing system.
2) Identification of client/user groups.
3) Needs assessment.
4) Prioritization of needs (setting objectives).
5) Field research (experimentation and formative evaluation of potential solutions to priority problems).
6) Field testing of the 'best' solution (includes summative evaluation).
7) Reporting of results.

CONCEPTS ADDRESSED BY THE MODEL

Informal R&D, as described here, is presented in this paper because it promotes several concepts believed to be of prime concern by international educators and development experts. As agricultural and extension educators, we should already be familiar with these concepts, and they are discussed below with respect to how the informal R&D model addresses each.

Inherent in the definition of informal R&D is the concept of meaningful participation. A review of 150 Cornell case studies in agricultural extension demonstrated that meaningful community involvement produced better projects reaching more beneficiaries within less time than did projects without such participation (Odell, 1986). Freire (1970) considered participation to be both a goal and a methodology in adult education programs, and Swantz (1975) presented the idea that research can be a two-way educative

communication rather than an elitist concept.

Participation is a crucial component of the emerging emphasis on people as opposed to technology-oriented programs (Pigozzi, 1982; Cernea, 1985). The Food and Agriculture Organization of the UN (1986) has reported the increasing use of participatory methodologies in its agricultural and rural development projects in Africa. In the words of Honychurch (1985:84), one of the assumptions made when initiating what he calls 'community based integrated rural development projects' is that "participation in all phases of project identification, design and implementation is essential for productive, long term change that is meaningful, just and effective."

Another concept that is addressed by informal R&D is the focus of teaching/learning content. Many authors have written of the need to focus upon the needs and concerns of adults by performing needs assessments (Knowles, 1984; Rogers, 1983), by allowing learners to set their own priorities (Richards, 1985) and in general, by avoiding top-down education.

Darkenwald and Merriam (1982) pointed out that in agricultural extension, one barrier to developing successful programs lies in the fact that agents are often not fully aware of farmers' problems and aspirations. As a result, actual problems are either not addressed or are neglected in comparison to experiment station-centered research results. Informal R&D programs, planned at the local level after performing needs assessments within pertinent farming and/or marketing systems can

ensure that the problems tackled by the R&D process are priority concerns of the participants.

The most appropriate methods for use in adult education programs have been the subject of much debate. Knowles (1984) suggested that learners be involved in diagnosing needs and in setting objectives, and Freire (1978) has written that educators should avoid domination--according to Freire, dialogue is equal to education. He stated that education is not 'banking', wherein teachers deposit information into the empty minds of students (Freire, 1970). Informal R&D allows the participants to learn at their own pace and to interact with one another and share their ideas and concerns. Using methods that are familiar, such as group discussions and hands-on experience with new practices, the group can gain confidence in the process of R&D.

A related concept is the notion of respect for indigenous agricultural knowledge and skills. Box (1988:63) wrote of a case study in the Dominican Republic in which "farmers get tired of being talked to, when they should be talked with." The idea is to identify and improve upon indigenous solutions to common problems rather than to replace traditional practices (Richards, 1985; Odell, 1986). Only recently were indigenous forms of instruction and socialization replaced and downgraded (Simkins, 1977) and individual farmers are known have been 'experimenting' for many years (Dommen, 1988). In Dommen's words:

> Learning the lessons of the past need not involve large budgets for elaborate research stations. But it does involve a particular mental aptitude on the part of researchers, who must be willing to learn from farmers.

> Their body of experience and knowledge is much wider than that of most researchers. (p.130)

Informal R&D is designed to take advantage of the knowledge of the group of participants, and to build on that knowledge. The 'cultivator experiments' described by Box (1988) can be translated into experimental designs and individual practices (potential solutions to problems) evaluated by the group.

Poplin (1979) has pointed out that there are often two distinct goals in any development project. The first, and most important, is to help people to develop their own human capabilities. The second is to achieve some concrete goal, such as improving farming practices. The second goal is really only a means to the first, a point that is often overlooked. Hall (1986) raised some specific issues of concern, including the debate over whether programs are designed for skill delivery or capacity building. He described the former as those that would 'insert knowledge' and the latter as those that emphasize the creative/solution finding capacities of people. Hall suggested:

> ...it is better to strengthen peoples' self-confidence, provide opportunities for them to exercise their own full intellectual and creative potential, than to simply provide ideas for other people. (p.17)

Informal R&D is undertaken with the aim of stimulating autonomous development. Once the facilitator sets the process in motion, the group begins to develop the skills that will aid them to successfully tackle new problems as these arise in the future.

Finally, there is the concept of the possibility of development leading to political empowerment and to demands for

change in the distribution of power within society (Kindervatter, 1979). Odell (1986), with respect to rural development, pointed out that the bottom line is power, and Young (1980:2) wrote, 'Education is a means of gaining power, and hence freedom'.

When using the alternative model of informal R&D for agricultural development, the goal is no longer simply to collect or to provide information, but to help people develop the skills that will allow them to pose and solve their own problems. When allowing adults to plan programs and set priorities, an educator must be prepared to face new situations, to remain flexible and to follow rather than to lead the process of group problem solving.

KEY ROLES FOR THE AGRICULTURAL OR EXTENSION EDUCATOR

There are many roles that an agricultural or extension educator must be prepared to play under these circumstances, and these are discussed within the five broad categories which follow.

PLANNING: Using informal R&D as a model for agricultural development requires characterization of the farming or marketing system and identification of groups of individuals who may become participants. The classic role of **researcher** is one important role at the initial stages of the process. Literature reviews, accessing primary and secondary data sources and using direct observational techniques prepare the educator to begin the informal R&D program with a targeted group. Richards (1985) suggested using intact groups if these are available, and Pigozzi (1982) has written that one role of the 'expert' involved in participatory research is to ensure adequate representation of

women, low resource and smallholder agriculturalists among the participants.

Chambers (1985) has described the role of the development professional as that of **collaborator** and **consultant**. The group should do as much of the planning of the needs assessment as is possible. Objectives are not set by the agricultural or extension educator, but by the participants after group discussion of the results of the needs assessment.

IMPLEMENTATION: Pigozzi (1982) and Swantz (1975) have written of the educator as a **facilitator** involved in a two-way communication flow, and reminded us that we need to avoid imposing our own views upon the process. The prioritization of needs should proceed with respect to group determined criteria, with the educator facilitating the process. Some possible criteria include feasibility (i.e., is the objective likely to be obtained within certain limits of time or resources?) and practicality (i.e., is the objective worth pursuing, in that success will make a meaningful difference?) It is important that the educator be comfortable working with groups of people to facilitate decision making and the achievement of consensus (Odell, 1986). The agricultural or extension educator's role at this point is mainly that of a **resource person** with respect to process or subject matter. If the topics the group has chosen to investigate happen not to fall within the educators' area of expertise, then the educator must network with the appropriate resource people and help the group to learn how to access these resources. Again, the

educator serves as a **consultant**, allowing others to handle the major responsibilities for the program, while aiding the group with the design, data collection and analysis during the needs assessment and field studies. In addition, the educator may be called upon to serve as an **instructor** in the concepts and practice of needs assessments, research design and evaluation.

EVALUATION: A large body of literature, much of which has been reviewed by Patton (1986), suggests that active participation of 'stakeholders' or those who are interested in the results of evaluations, greatly enhances the utilization of evaluation results. The educator's roles are to **guide the process of evaluation** of the field studies and the program itself, to ensure meaningful participation of the group members and to aid in data collection and analysis. Participants should be in control of selecting the evaluation questions based upon their initial objectives, of setting the criteria for judging success and of the interpretation of the findings. The idea is to help the group develop the skills they will use for future evaluation efforts of new problem solving strategies.

REPORTING: Formal and informal **reporting of the results** of the needs assessments, research activities and evaluation studies is a way to stimulate interest in the program, to enhance the linkages between research and extension agencies, and to attract future funding for the activities of the group or the professional. In addition, reports can provide useful information regarding the needs and concerns of the group that cannot be

easily addressed at the local level, research findings for verification on a wider scale, and for extension of improved practices to other locales. Audiences that may find the reports of interest include the national, regional and local governments and research agencies (for planning purposes) and any formal extension or agricultural education organizations (as the basis for future program development).

TRAINING: Professional educators can serve as **trainers** in to enable participatory or informal R&D methodologies to become part of the repertoire of skills of vocational agriculture instructors and extension agents. Ellis (1985) has written of short courses and workshops on participatory approaches held in the Caribbean as a new phenomenon in adult education. Odell (1986) addressed the educator's role in the process of strengthening local institutions whenever becoming involved in agricultural or rural development. By training others who work in the field of agricultural development, agricultural and extension educators can act as multipliers and ensure that the benefits of informal R&D practices can reach an ever-widening audience.

SUMMARY AND CONCLUSION

Informal R&D has been presented as a viable alternative model for agricultural development efforts in developing countries. Many of the concepts believed to be of prime concern by development specialists and international educators are incorporated in the model. Key elements include active participation of the local population in the R&D process, respect for indigenous knowledge

systems and an emphasis on skill development as opposed to technology transfer.

The agricultural or extension educator must be willing to undertake a wide variety of roles when using informal R&D as a model for research or educational programs. Key roles for educators involved in informal R&D programs include those of researcher, facilitator, consultant, collaborator, instructor, reporter and trainer of other educators.

It is the hope of the author that agricultural and extension educators will rise to the challenge and begin to use informal R&D in the field. There is much research to be done on how to improve this process. Many agricultural subjects, such as postharvest handling and marketing, lend themselves well for use of the model. Although postharvest studies have been seriously neglected in the past, these could be implemented within a relatively short time frame, as results of simple experiments comparing different postharvest practices could be obtained within days or even hours. The informal R&D process would then proceed rapidly to help people learn how to pose and solve their own problems.

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